What is claimed is:

1. A method of promoting axonal growth in a neural cell, comprising modulating the expression or bioactivity of a *bcl* family member in a neural cell such that axonal growth occurs.

2. The method of claim 1, wherein the cell is contacted with an agent which increases expression of a *bcl* family member.

3. The method of claim 1, wherein the cell is contacted with an agent which increases the bioactivity of a *bcl* family member.

4. The method of claim 1, wherein the *bcl* family member is *bcl*-2.

5. The method of claim 1, wherein the step of modulating occurs *in vivo*.

6. The method of claim 5, further comprising testing agents which influence the ability of a *bcl*-2 modulating agent to promote axonal growth.

7. The method of claim 1, wherein the neural cell is in the central nervous system.

8. The method of claim 7, wherein the neural cell is in the ascending tract of the spinal cord.

9. The method of claim 7, wherein the neural cell is in the brain.

10. The method of claim 7, wherein the neural cell is in the peripheral nervous system.

11. The method of claim 1, wherein the *bcl*-2 family member is a *bcl* polypeptide or fragment thereof.

12. The method of claim 1, wherein the *bcl* family member is a polypeptide comprising the BH1 and BH2 domains of a *bcl*-2 polypeptide.

13. The method of claim 1, further comprising additionally administering an agent which creates an environment favorable to axonal cell growth.

14. The method of claim 13, wherein the agent comprises one or more agents selected from the group consisting of: trophic factors, receptors, extracellular matrix proteins, intrinsic factors, or adhesion molecules.

15. A method of treating a subject that has suffered a traumatic injury in which nerve cell injury has occurred, comprising administering to said subject a *bcl* modulating agent such that treatment of the traumatic injury occurs.

16. A method of treating a subject for a state characterized by diminished potential for axonal growth, comprising administering a therapeutically effective amount of an agent which modulates the bioactivity or expression of a *bcl* family member in a subject such that axonal growth occurs.

17. The method of claim 16, wherein the agent increases expression of a *bcl* family member.

18. The method of claim 16, wherein the agent increases the bioactivity of a *bcl* family member.

19. The method of claim 16, wherein the state characterized by diminished potential for axonal growth is a central nervous system disorder.

20. The method of claim 19, wherein the state characterized by diminished potential for axonal growth is a traumatic injury to the central nervous system.

21. The method of claim 16, wherein the state characterized by diminished potential for axonal growth is a peripheral nervous system disorder.

22. The method of claim 16, wherein the *bcl* family member is a *bcl*-2 polypeptide or fragment thereof.

23. The method of claim 16, wherein the *bcl* family member is a polypeptide comprising the BH1 and BH2 domains of a *bcl* polypeptide.

24. The method of claim 16, further comprising additionally administering an agent which creates an environment favorable to axonal cell growth.

25. The method of claim 24, wherein the agent comprises one or more agents selected from the group consisting of: trophic factors, receptors, extracellular matrix proteins, or intrinsic factors.

26. A method of treating a state characterized by diminished potential for axonal growth, comprising administering to a subject with said state a therapeutically effective amount of a gene construct for expressing a *bcl*-2 family member, wherein the gene construct is formulated for delivery into neural cells of the subject such that axonal growth occurs.

27. The method of claim 26, wherein the subject is a mammal.

28. The method of claim 26, wherein the subject is a human.

29. The method of claim 26, wherein the gene construct is in a viral vector.

30. The method of claim 29, wherein the viral vector is an adenovirus.

31. The method of claim 29, wherein the viral vector is a herpes virus.

32. The method of claim 26, wherein the gene construct is formulated in liposomes.

33. The method of claim 26, wherein the gene construct is in a gene delivery composition specially formulated to cross the blood-brain barrier.

34. The method of claim 26, wherein the neural cell of the subject is in the central nervous system.

35. The method of claim 34, wherein the neural cell is in the spinal cord.

36. The method of claim 34, wherein the neural cell is in the brain.

37. The method of claim 26, wherein the neural cell is in the peripheral nervous system.

38. The method of claim 26, wherein the *bcl* family member is a *bcl*-2 polypeptide or fragment thereof.

39. The method of claim 26, wherein the *bcl* family member is a polypeptide comprising the BH1 and BH2 domains.

40. The method of claim 26, further comprising further administering an agent which creates an environment favorable to axonal cell growth.

41. The method of claim 40, wherein the agent comprises one or more agents selected from the group consisting of: trophic factors, receptors, extracellular matrix proteins, or intrinsic factors..

42. A pharmaceutical preparation comprising a therapeutically effective amount of a recombinant transfection system for treating a state associated with diminished potential for axonal growth in a subject, comprising

(i) a gene construct including the nucleic acid encoding a *bcl* family member;

(ii) a gene delivery composition for delivering said gene construct to a neural cell of the subject and causing the cell to be transfected with said gene construct resulting in expression thereof; and further comprising

(iii) one or more agents favorable for the promotion of axonal growth.

43. The pharmaceutical preparation of claim 42, wherein the agent is selected from the group consisting of: trophic factors, receptors, extracellular matrix proteins, intrinsic factors, or adhesion molecules.

44. The preparation of claim 42, wherein the gene delivery composition is selected from the group consisting of a recombinant viral particle, and a plasmid.

45. The preparation of claim 42, wherein the gene delivery composition has been specially formulated to cross the blood-brain barrier.

46. A packaged drug for treating a state associated with diminished potential for axonal growth, comprising a *bcl*-2 modulating agent packaged with instructions for treating a subject having said state.

47. The packaged drug of claim 46, wherein the *bcl* modulating agent increases expression of a *bcl* family member.

48. The packaged drug of claim 47, wherein said drug is used to increase expression of a *bcl* family member in a neural cell of the central nervous system.

49. The packaged drug of claim 48, wherein said drug is used to increase expression of a *bcl* family member in a neural cell of the spinal cord.

50. The packaged drug of claim 48, wherein said drug is used to increase expression of a *bcl* family member in a neural cell of the brain.

51. The packaged drug of claim 47, wherein said drug is used to increase expression of a *bcl* family member in the peripheral nervous system.

52. The packaged drug of claim 47, wherein the *bcl* family member is a *bcl*-2 polypeptide or fragment thereof.

53. The packaged drug of claim 47, wherein the *bcl* family member is a polypeptide comprising the BH1 and BH2 domains of a *bcl*-2 polypeptide.

54. The packaged drug of claim 47, further comprising an agent which creates an environment favorable to axonal cell growth.

55. The packaged drug of claim 54, wherein the agent comprises one or more agents selected from the group consisting of: trophic factors, receptors, extracellular matrix proteins, intrinsic factors, or adhesion molecules.

56. The packaged drug of claim 47, wherein the *bcl* modulating agent is a pharmaceutical preparation comprising a *bcl*-2 gene in a plasmid.

57. The packaged drug of claim 47, wherein the *bcl* modulating agent is a pharmaceutical preparation comprising a *bcl*-2 gene in a viral vector.

58. The packaged drug of claim 47, wherein the *bcl* modulating agent is a pharmaceutical preparation comprising a *bcl*-2 gene in a non-viral delivery system.

59. A method for selecting an agent for its ability to promote axonal growth in a culture comprising;

(i) contacting a first tissue sample comprising axons with a second tissue sample into which said axons can grow;

(ii) modulating the expression of a *bcl* family member in the first tissue sample; and

(iii) determining whether axonal growth occurs.

60. A method for selecting an agent for its ability to promote axonal growth in a culture comprising;

(i) forming a culture by contacting a first tissue sample comprising axons with a second tissue sample into which said axons can grow;

(ii) contacting said culture with a test agent; and

(iii) determining whether axonal growth occurs.